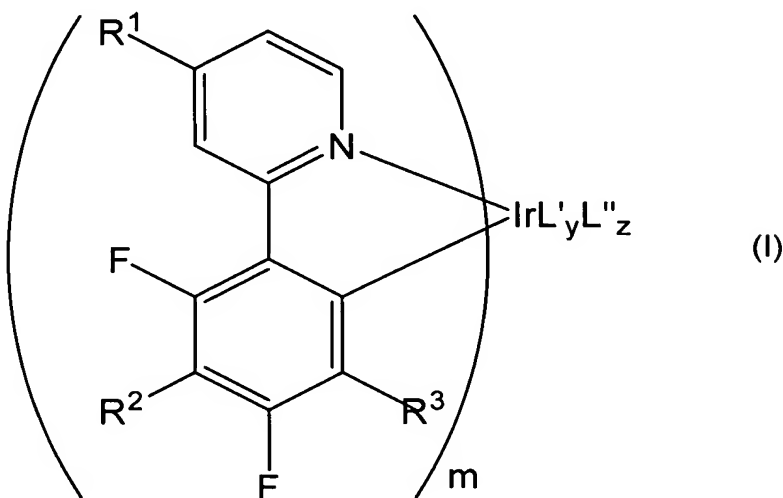


CLAIMS

What is claimed is:

1. An organic electronic device comprising at least one layer comprising a compound having Formula I

5



wherein:

$R^1 = \text{H}, R^4, \text{OR}^4, \text{N}(\text{R}^4)_2$

$R^2 = \text{H}, \text{C}_n\text{F}_{2n+1}, \text{C}_n\text{F}_{2n+1}\text{SO}_2, \text{COOR}^4, \text{CN}$

$R^3 = \text{H}, \text{C}_n\text{F}_{2n+1}, \text{C}_n\text{F}_{2n+1}\text{SO}_2, \text{COOR}^4, \text{CN}$

R^4 is the same or different at each occurrence and is H, alkyl, aryl, or adjacent R^4 groups can join together to form a 5- or 6-membered ring,

L' = a bidentate ligand and is not a phenylpyridine, phenylpyrimidine, or phenylquinoline;

L'' = a monodentate ligand, and is not a phenylpyridine, and phenylpyrimidine, or phenylquinoline;

$m = 1, 2$ or 3 ,

n is an integer from 1 through 20,

$y = 0, 1$ or 2 , and

$z = 0$ or an integer from 1 through 4,

with the proviso that the compound is charge neutral and the iridium is hexacoordinate.

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2. The device of Claim 1 wherein R^2 and R^3 are independently selected from H, CF_3 , C_2F_5 , $n-C_3F_7$, $i-C_3F_7$, C_4F_9 , CF_3SO_2 , $COOR^4$ and CN.

3. The device of Claim 1 wherein $m = 3$, $y = 0$, and $z = 0$.

5 4. The device of Claim 1 wherein $m = 2$, $y = 1$, $z = 0$, and L' is a monoanionic bidentate ligand.

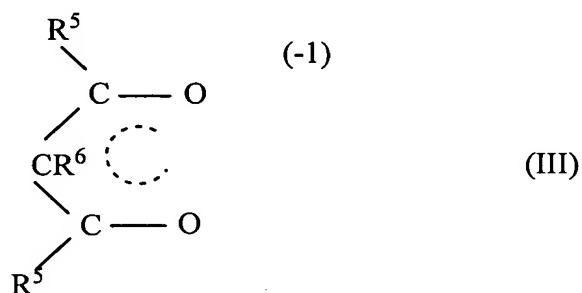
5. The device of Claim 1 wherein $m = 1$, $y = 1$, and $z = 2$.

6. The device of Claim 5 wherein at least one L'' is a hydride.

7. The device of Claim 4 wherein L' has a coordinating group
10 selected from amino, imino, amido, alkoxide, carboxylate, phosphino, and thiolate.

8. The device of Claim 4 wherein L' is selected from β -enolate ligands, N-analogs of β -enolate ligands, S-analogs of β -enolate ligands, aminocarboxylate ligands, iminocarboxylate ligands, salicylate ligands,
15 hydroxyquinolate ligands, S-analogs of hydroxyquinolate ligands, phosphinoalkoxide ligands, and a ligand coordinated through a carbon atom that is part of an aromatic group.

9. The device of Claim 8 wherein L' is a β -enolate having Formula III:



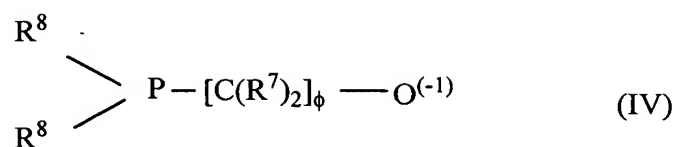
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where

R^5 is the same or different at each occurrence and is selected from hydrogen, halogen, substituted or unsubstituted alkyl, aryl, alkylaryl
25 and heterocyclic groups, or adjacent R^5 groups can be joined to form five- and six-membered rings, which can be substituted, and

R^6 is selected from alkyl, aryl, alkylaryl, heterocyclic groups, and fluorine.

10. The device of Claim 8 wherein L' is a phosphinoalkoxide having
30 Formula IV:



where

R^7 can be the same or different at each occurrence and is selected from H and $\text{C}_n(\text{H}+\text{F})_{2n+1}$,

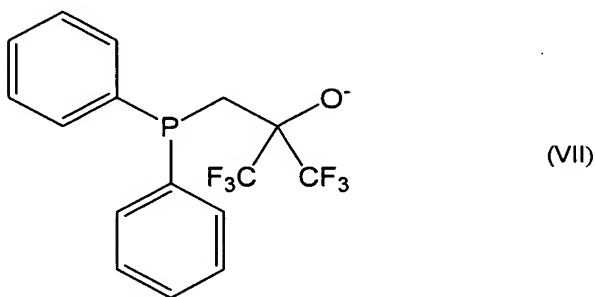
5 R^8 can be the same or different at each occurrence and is selected from $\text{C}_n(\text{H}+\text{F})_{2n+1}$ and $\text{C}_6(\text{H}+\text{F})_5$, or $\text{C}_6\text{H}_{5-n}(\text{R}^9)_n$,

$\text{R}^9 = \text{CF}_3$, C_2F_5 , $n\text{-C}_3\text{F}_7$, $i\text{-C}_3\text{F}_7$, C_4F_9 , CF_3SO_2 , and

ϕ is 2 or 3.

11. The device of Claim 8 wherein L' has Formula VII:

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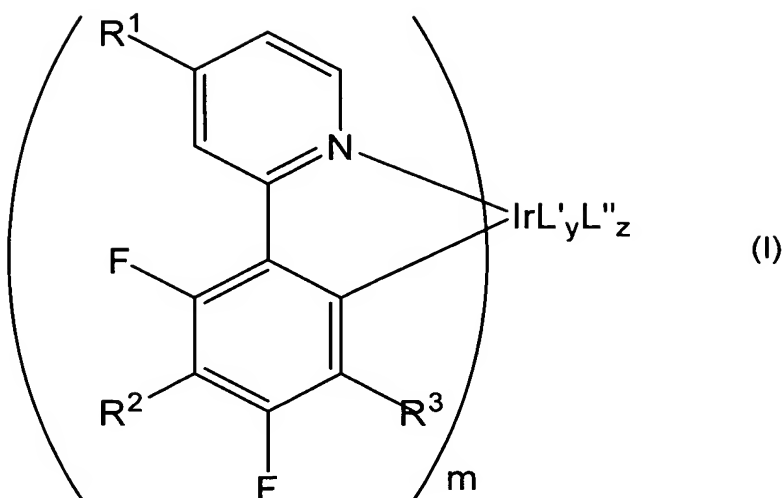
12. The device of Claim 1 wherein the at least one layer is a light-emitting layer.

13. The device of Claim 12 wherein the light-emitting layer further
15 comprises a diluent.

14. The device of Claim 13 wherein the diluent comprises a polymeric or small molecule material, or a mixture thereof.

15. A compound having Formula I

20



wherein:

$R^1 = H, R^4, OR^4, N(R^4)_2$

5 $R^2 = H, C_nF_{2n+1}, C_nF_{2n+1}SO_2, COOR^4, CN$

$R^3 = H, C_nF_{2n+1}, C_nF_{2n+1}SO_2, COOR^4, CN$

R^4 is the same or different at each occurrence and is H, alkyl, aryl, or adjacent R^4 groups can join together to form a 5- or 6-membered ring,

10 $L' =$ a bidentate ligand and is not a phenylpyridine, phenylpyrimidine, or phenylquinoline;

$L'' =$ a monodentate ligand, and is not a phenylpyridine, and phenylpyrimidine, or phenylquinoline;

$m = 1, 2$ or 3 ,

15 n is an integer from 1 through 20,

$y = 0, 1$ or 2 , and

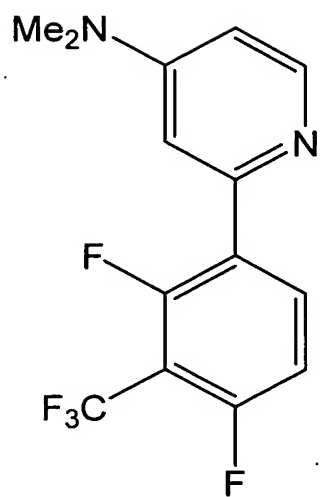
$z = 0$ or an integer from 1 through 4,

with the proviso that the compound is charge neutral and the iridium is hexacoordinate.

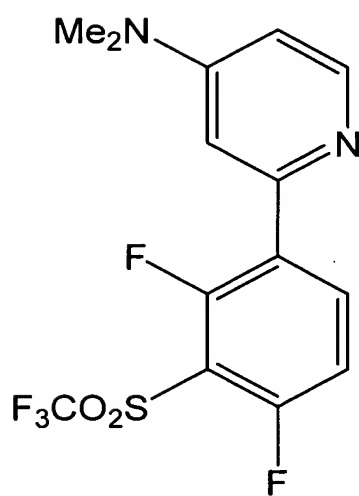
20 16. A compound according to Claim 15, wherein R^2 and R^3 in Formula I are independently selected from H, CF_3 , C_2F_5 , $n-C_3F_7$, $i-C_3F_7$, C_4F_9 , CF_3SO_2 , $COOR^4$ and CN.

17. A compound selected from Formula IX, Formula X, Formula XI, and Formula XII:

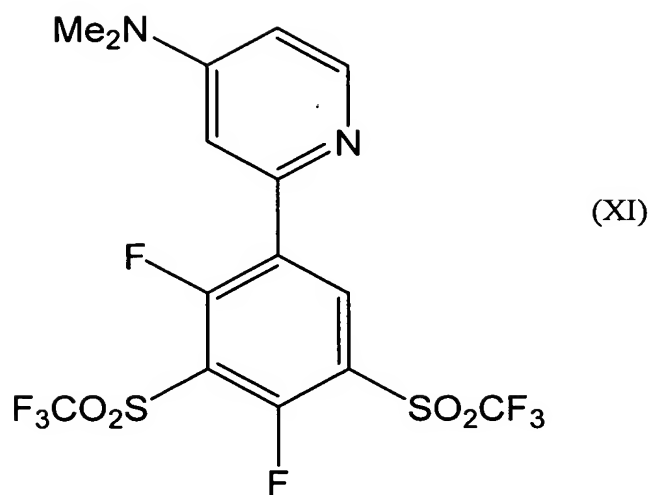
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(IX)

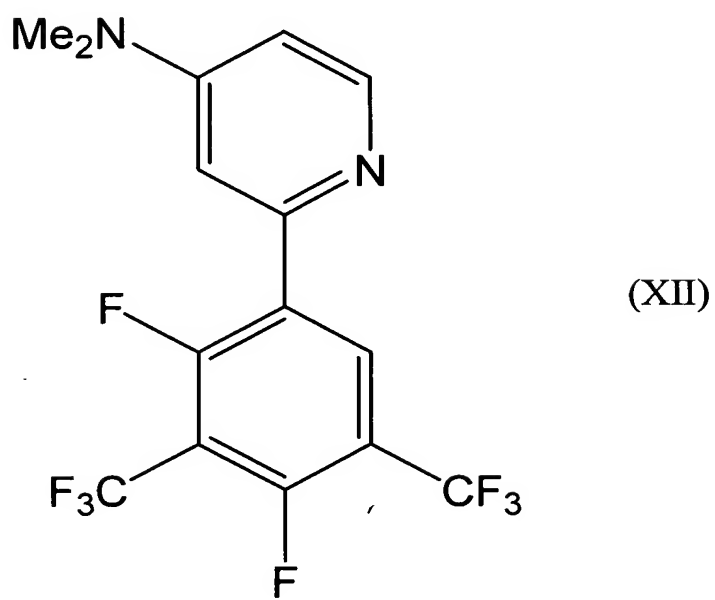


(X)



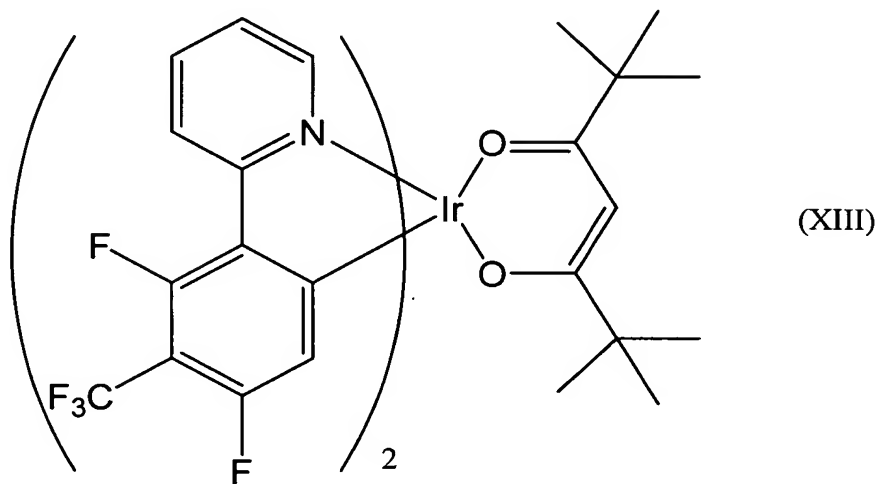
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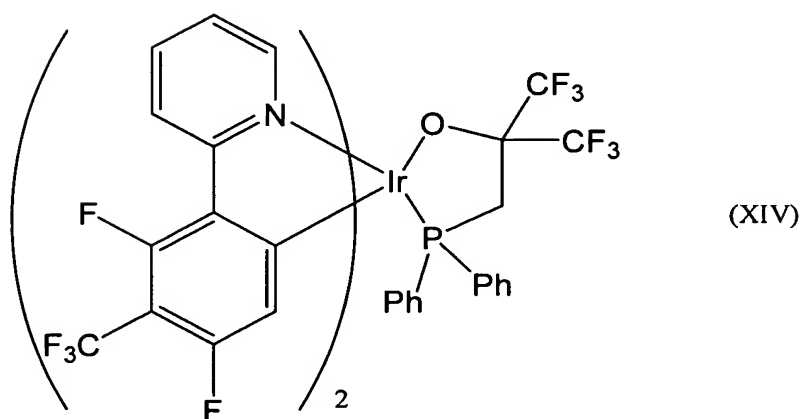


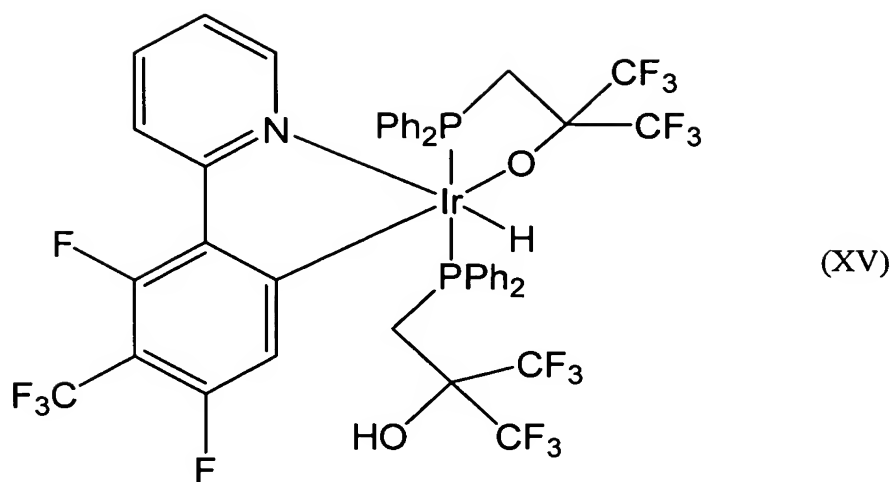
18. A compound having a structure selected from Formula XIII, Formula XIV, and Formula XV below:

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19. A compound having Formula VIII:

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